

Notice of Allowability

Application No.

10/525,675

Examiner

Ling-Siu Choi

Applicant(s)

DEAN, DAVID M.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/05/2007.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This Office Action is in response to the Amendment filed July 5, 2007. Claims 13-16 have been added and claims 1-16 are now pending.

Allowable Subject Matter

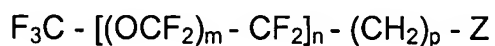
2. Claims 1-16 are allowed.
3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: DeRosa et al. (US 5,141,661) and Chou (WO 02/072648 A2).

Summary of claim 1:

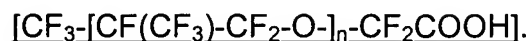
A fluorine-containing ethylene graft copolymer composition comprising the grafted copolymer that is the product of the reaction between	
	an ethylene copolymer selected from the group consisting of ethylene glycidyl acrylate copolymers and ethylene glycidyl methacrylate copolymers
	a fluorine-containing grafting agent selected from the group consisting of fluorinated carboxylic acids, perfluorinated carboxylic acids and perfluoropolyether carboxylic acids of the formula $\text{CF}_3\text{--}[\text{CF}(\text{CF}_3)\text{--CF}_2\text{--O}]_n\text{--CF}_2\text{COOH}$ wherein n = an integer from about 5- about 50

DeRosa et al. disclose an ethylene/ α -olefin polymers grafted with perfluoro-substituted, ethylenically-unsaturated epoxides and then reacted with perfluoro-substituted nucleophiles, which is obtained by the steps comprising reacting (a) ethylene/ α -olefin polymer with (b) perfluoro-substituted, ethylenically-unsaturated epoxide to form an epoxy-containing, perfluoro-grafter polymer; and further with (c) perfluoro-substituted nucleophile which reacts with the pendant epoxy group on the graft polymer to form additionally perfluoro-substituted, graft polymer; wherein the proportions of epoxide and nucleophile to polymer generally range from about 0.1 to about 10 weight percent (abstract; claim 1). DeRosa et al. further disclose that the epoxide can be perfluoroglycidyl (meth)acrylates and other perfluoro-substituted, ethylenically-unsaturated epoxides; the perfluoro-substituted nucleophiles is represented by the general formula of



wherein n is greater than 1; m is 0 or 1; p is from 0 to about 10; Z is preferably hydroxy, phosphate, carboxylic acid or thiocarboxylate (col. 4, lines 16-49). DeRosa et al. furthermore disclose that the resulting graft polymer can be used as a lubricant additive (claim 1). However, DeRosa et al. do not teach or fairly suggest the claimed fluorine-containing ethylene graft copolymer comprising a reaction product between an ethylene copolymer selected from the group consisting of ethylene glycidyl acrylate copolymers and ethylene glycidyl methacrylate copolymers and a fluorine-containing grafting agent selected from the group consisting of fluorinated carboxylic acids, perfluorinated carboxylic acids, and perfluoropolyether carboxylic acids

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Chou discloses a fluorine containing ethylene copolymer obtained by the copolymerization of ethylene, fluorine-containing comonomer, and glycidyl methacrylate (claims 1, 2, and 8). Chou further disclose a melt-processable ethylene copolymer blend comprising (A) the fluorine containing ethylene copolymer and a second thermoplastic polymer which can be polyethylene or polypropylene (claims 22-26). Chou furthermore disclose that the copolymer can be used in making film and woven or non-woven fiber (page 11, lines 6-8). However, Chou does not teach or fairly suggest the claimed fluorine-containing ethylene graft copolymer comprising a reaction product between an ethylene copolymer selected from the group consisting of ethylene glycidyl acrylate copolymers and ethylene glycidyl methacrylate copolymers and a fluorine-containing grafting agent selected from the group consisting of fluorinated carboxylic acids, perfluorinated carboxylic acids and perfluoropolyether carboxylic acids $[\text{CF}_3-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{O}]_n-\text{CF}_2\text{COOH}]$.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

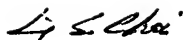
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on 571-272-1114.



LING-SUI CHOI
PRIMARY EXAMINER

August 25, 2007